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A case report of cutaneous xanthoma in a cockatiel (*Nymphicus hollandicus*)

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Abstract
A two year old cockatiel was presented to the Madras Veterinary College Teaching Hospital with a history of solitary swelling on the skin near the cloacal region past six months. Clinical examination revealed that the nodule was light yellow, firm, irregularly spherical, well demarcated, pedunculated and ulcerated. The excised biopsy mass was subjected for histopathology examination. Grossly, the mass was solitary, light yellow coloured, firm and pedunculated. Histopathological examination revealed diffuse infiltration of numerous large foamy macrophages, lymphocytes and multinucleated giant cells and numerous cholesterol clefts in the epidermo-dermis and dermis region. From the clinical examination, gross and histopathological examination, it was confirmed as cutaneous xanthoma.

Keywords: Cockatiel, xanthoma, pathomorphology

1. Introduction
Xanthoma is a rare and nutritional related tumour in poultry. Xanthomas are benign, granulomatous nodules which occurs in the skin, subcutaneous tissue, tendons and other internal organs of humans [1] and animals *viz.* dogs [2], cats [3], horses [4], gopher snakes [5] and Geckos [6]. It is frequently observed in gallinaceous birds and psittacine birds.
Xanthoma has also been reported in pigeon [7] and in cockatiels [8]. Kheirandish *et al.* (2013) [7] reported that the xanthomas were usually non neoplastic masses and occur as masses composed of lipoprotein laden macrophages. The etiology of xanthomas is hyperlipidaemia observed due to disturbance in the lipid metabolism and lipid transport [9-11]. The causes of hyperlipidaemia could be familial or inherited in humans [12], dogs and cats [10, 11]. But the above etiology in most of the cases could be likely, however, they might be grouped as xanthelasma, xanthoma disseminatum, plane xanthomas, eruptive xanthomas [7]. Xanthomas develop as a swollen, thickened yellow coloured skin in the birds [13].
Grossly, the xanthomas appear yellow to white in color which could be attributed to their lipid content. It could be variably sized. Characteristic histopathological features are indicated by presence of large foamy macrophages, multinucleated giant cells, free lipid droplets and cholesterol clefts along with infiltration by lymphocytes and plasma cells [7, 11, 14].
Hence, the present case describes in detail the occurrence of cutaneous xanthoma in a cockatiel (*Nymphicus hollandicus*) and its pathomorphological findings.

2. Materials and Methods
Two year old cockatiel was presented to the Madras Veterinary College Teaching Hospital during April 2018 with a history of solitary swelling on the skin near the cloacal region since six months. Clinical examination revealed that the nodule was light yellow, firm, irregularly spherical, well demarcated (Fig. 1), pedunculated and ulcerated. The area was not covered with feathers. The owner requested to remove the mass surgically to prevent continuous pecking of the cloacal region. Subsequently, the mass was surgically excised under anaesthesia.
The biopsy of the mass obtained from the excised nodule was collected in 10 per cent Neutral Buffered Formalin (NBF) in wide mouthed containers. After fixation, it was subjected to regular histopathological processing techniques as per standard procedures.
The paraffin embedded tissue sections were cut into 4-6µm thickness and stained with Haematoxylin and Eosin stain (H&E). The stained slides were examined under light microscope.

3. Results

Gross pathological examination of the surgically excised mass revealed a solitary light yellow coloured irregularly spherical firm pedunculated nodule (Fig. 2) of about 5 x 6 cm in size. Multifocal ulcerations and haemorrhages were also noticed. Histopathological examination of the mass revealed diffuse infiltration of numerous large foamy macrophages in the epidermo-dermis and dermis region (Fig. 3 and Fig. 4). Numerous cholesterol clefts were seen. Multifocal infiltration of lymphocytes (Fig. 6) and multinucleated giant cells (Fig. 5) were seen in the epidermo-dermis and dermis junction. Ulceration and haemorrhages were also seen.

Based on the gross and histopathological findings, the mass was confirmed as cutaneous xanthoma.

Fig 1: Nodule on the cloacal region

Fig 2: Solitary light yellow coloured irregularly spherical firm pedunculated nodule

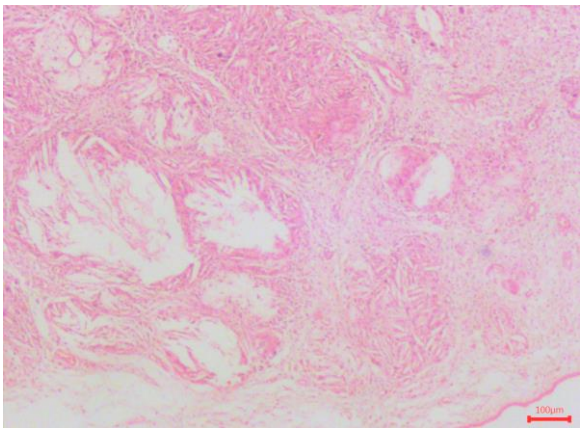

Fig 3: Numerous foamy macrophages with cholesterol clefts H&E 100 µm

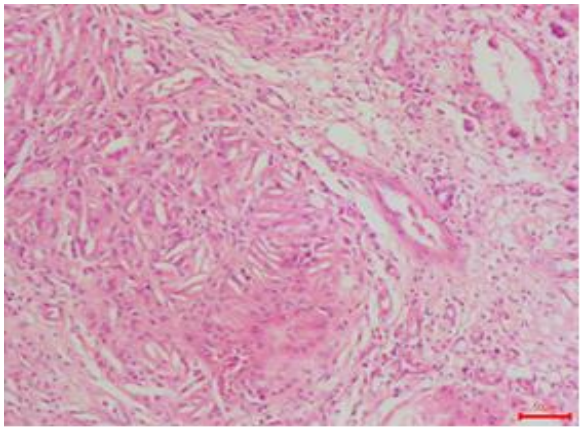

Fig 4: Foamy macrophages with cholesterol clefts H&E 50 µm

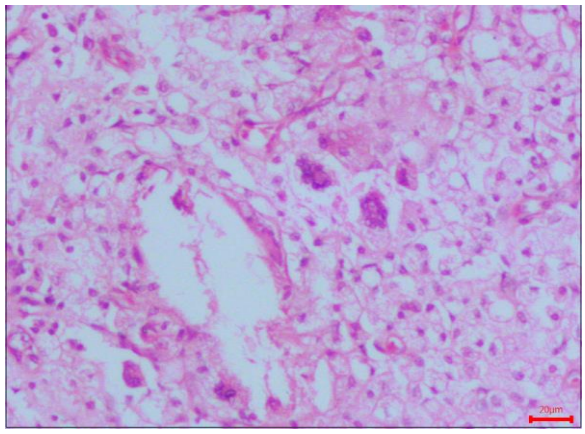

Fig 5: Foamy macrophages with multinucleated giant cells H&E 20µm

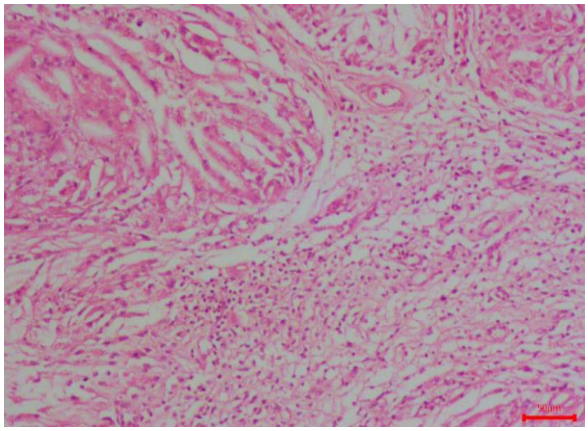

Fig 6: Multifocal lymphocytic infiltration H&E 20µm

Xanthomas are nodular, inflammatory lesion that involves neoplastic lipomatous etiology. These nodules are either solitary or multiple and appear as papillary to plaque formation. It can occur in subcutaneous region of skin, tendons, digestive system, kidney and conjunctiva in humans and animals [11, 14]. Xanthomas are characterised by diffuse foamy macrophages, large number of cholesterol clefts and presence of multinucleated giant cells [15]. The present case was recorded in the cutaneous region and histopathological lesion consisting of foamy macrophages, cholesterol clefts and multinucleated giant cells.

Grossly, the nodule was yellow, pedunculated mass was observed in the skin of cloacal region while Lipar *et al.* (2011) [8] reported that a yellow coloured elliptical tumour of

about 4 – 3 cm size nodule under cloacal region with bleeding wound was observed in a cockatiel. The development of xanthoma associated with obesity, hyperlipidaemia, hypothyroidism, genetic factor and diabetes mellitus. Some medicines could have caused disturbance in the lipid metabolism [8]. Xanthoma recorded in the present case was in the skin of cloacal region which is in agreement with Lipar *et al.* (2011) [8]. In the present case, the cause of xanthoma is not identified and it might be due to feeding of fat substances, inflammation and trauma [9]. Xanthomas are usually diagnosed in humans in response to secondary hyperlipidaemia associated with diabetes mellitus, hypothyroidism, multiple myeloma or cholestatic liver disease [16, 17, 18]. In animals affected with xanthomas, disturbances in the fat metabolism were recorded including hyperlipidaemia, diabetes mellitus, hypothyroidism, hyperadrenocorticism found in different animal species [19-21, 4].

The gross examination of the nodule in the present case was solitary pedunculated mass in the cloacal skin region while Jaensch *et al.* (2002) [22] observed multiple papillary mass on the feet-webbing, periocular skin and submandibular space in a goose. Vogelnest (2001) [3] reported multifocal papules and plaques under head and neck of nine month old cat.

In the present case, histopathology examination confirmed the xanthoma which is in agreement with earlier report [7]. Further study is needed to find out the etiology related with hyperlipidaemia and immunohistochemical study.

5. Conclusion

In the present study, the mass was confirmed as cutaneous xanthoma from the gross and the histopathological examination. Future studies are essential to rule out the underlying etiological factor in establishing the cause of xanthoma, its relativity towards hyperlipidemia and Immunohistochemical characterisation.

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7. References

1. Kruth SH. Lipid deposition in human tendon xanthoma. The American Journal of Pathology. 1985; 121:311-315.
2. Romanucci M, Malatesta D, Guardiani P, Frescur P, Della Salda L. Xanthogranulomatous inflammation of the small bowel in a dog. Veterinary Pathology. 2008; 42:207-211.
3. Vogelnest LJ. Cutaneous xanthomas with concurrent demodicosis and dermatophytosis in a cat. Australian Veterinary Journal. 2001; 79:470-475.
4. Hargis AM, Ginn PE. The integument. In: Pathologic basis of veterinary disease, McGavin MD, Zachary JF, 4th edition, Mosby Elsevier, St. Louis, MO, 2007, 1236-1238.
5. Ryan MJ, Whitney GD. Xanthoma in a gopher snake. Veterinary Medicine Small Animal Clinician. 1980; 3:503-507.
6. Garner MM, Lung NP, Murray S. Xanthomatosis in geckos: five cases. Journal of Zoo and Wildlife Medicine. 1999; 30:443-447.
7. Kheirandish R, Azizi S, Azari O. Cutaneous Xanthoma in a Domestic Pigeon: Pathologic Study (Case Report). Global Veterinaria. 2013; 10(2):140-143.
8. Lipar M, Horvatek D, Prukner-Radovčić E, Kurilj AG, Radišić B, Vnuk D *et al*. Subcutaneous xanthoma in a cockatiel (Nymphicus hollandicus) - a case report. Veterinarski Arhiv. 2011; 81(4):535-543.
9. Latimer KS. Oncology. In: Avian Medicine: Principles and Application. (Ritchie, BW, Harrison GJ, Harrison LR. Eds.). Wingers. Florida. 1984, 642-668.
10. Barrie J, Watson TD. Hyperlipidemia. In: Bonagura JD, editor. Kirk's Current Veterinary Therapy XII. Saunders, Philadelphia, 1955, 430-434.
11. Grundy SM. Xanthomatoses and lipoprotein disorders. In: Fitzpatrick's Dermatologyin General Medicine. (Freedberg, I. M., A. Z. Eisen, K. Wolff, Eds.). McGraw-Hill. New York. 1999, 1804-1811.
12. Firth JC, Marais AD. Familial hypercholesterolaemia: The Cape Town experience. The South African Medical Journal. 2008; 98:99-104.
13. Harcourt-Brown NH. Psittacine birds. In: Avian Medicine. (Tully, T. N., M. P. C. Lawton, G. M. Dorrestein, Eds.). Butterworth Heinemann Oxford, Auckland, Boston, Johannesburg, Melbourne, New Delhi, 2000, 112-142.
14. Scott DW, Miller WH, Griffin CE. Muller and Kirk's Small Animal Dermatology. 6th edition. Saunders, Philadelphia. 2001; 873-874, 1148-1153.
15. Reavill D. Tumors of pet birds. Veterinary Clinics of North America Exotic Animal Practice. 2004; 7:537-560.
16. Nayak KR, Daly RG. Eruptive xanthomas associated with hypertriglyceridemia and new-onset diabetes mellitus. The New England Journal of Medicine. 350: 1235.
17. Sibley C, Stone NJ. Familial hypercholesterolemia: a challenge of diagnosis and therapy. Cleveland Clinic Journal of Medicine. 2006; 73(1):57-64.
18. White LE. Xanthomatoses and lipoprotein disorders. In: Freedberg *et al*. Eds. Fitzpatrick's dermatology in general medicine, 7th edition, McGraw-Hill Inc., 2009, 1272-1281.
19. Gumbrell RC. A case of multiple xanthomatosis and diabetes mellitus in a dog. The New Zealand Veterinary Journal. 1972; 20:240-242.
20. Chastain CB, Graham CL. Xanthomatosis secondary to diabetes mellitus in a dog. Journal of American Veterinary Medical Association. 1978; 172:1209-1211.
21. Jones BR, Hancock WS, Campbell CH. Occurrence of idiopathic, familial hyperchylomicronaemia in a cat. Veterinary Record. 1983; 112:543-547.
22. Jaensch SM, Butler R, O'Hara A, Raidal SR, Wyatt K. Atypical multiple, papilliform, xanthomatous, cutaneous neoplasia in a goose (*Anser anser*). Australian Veterinary Journal. 2002; 80(5):277-280.